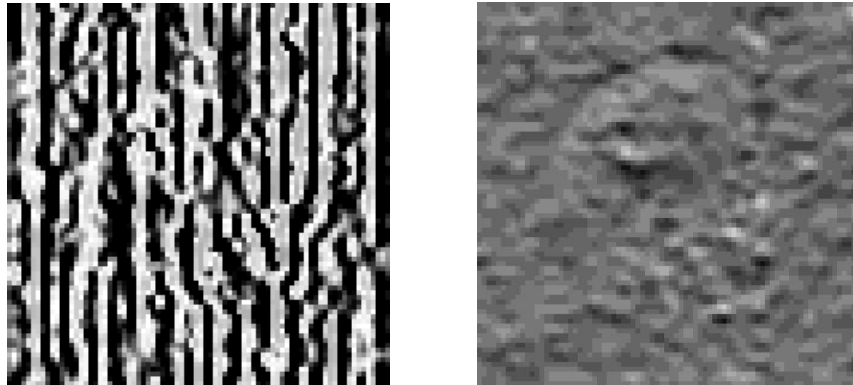


Feedback received from the first edition of this report has led to the addition of this section to the original report. The feedback in question has related to the quality of the images, which are poor compared to those usually seen in the reports of resistivity contractors. We hope that this supplement illustrates the extent of subjective interpretation and practical difficulties which may be encountered in the utilisation of this methodology.

In current practice most archaeologists do not have much practical experience of resistivity testing; by and large an external group is contracted to do the work. The resultant report and processed images are used as appropriate to the dig, but, as can be seen by the following two images, using different processing techniques on the data in this report, an understanding of the site and what might be expected can have a profound influence on the outcome.



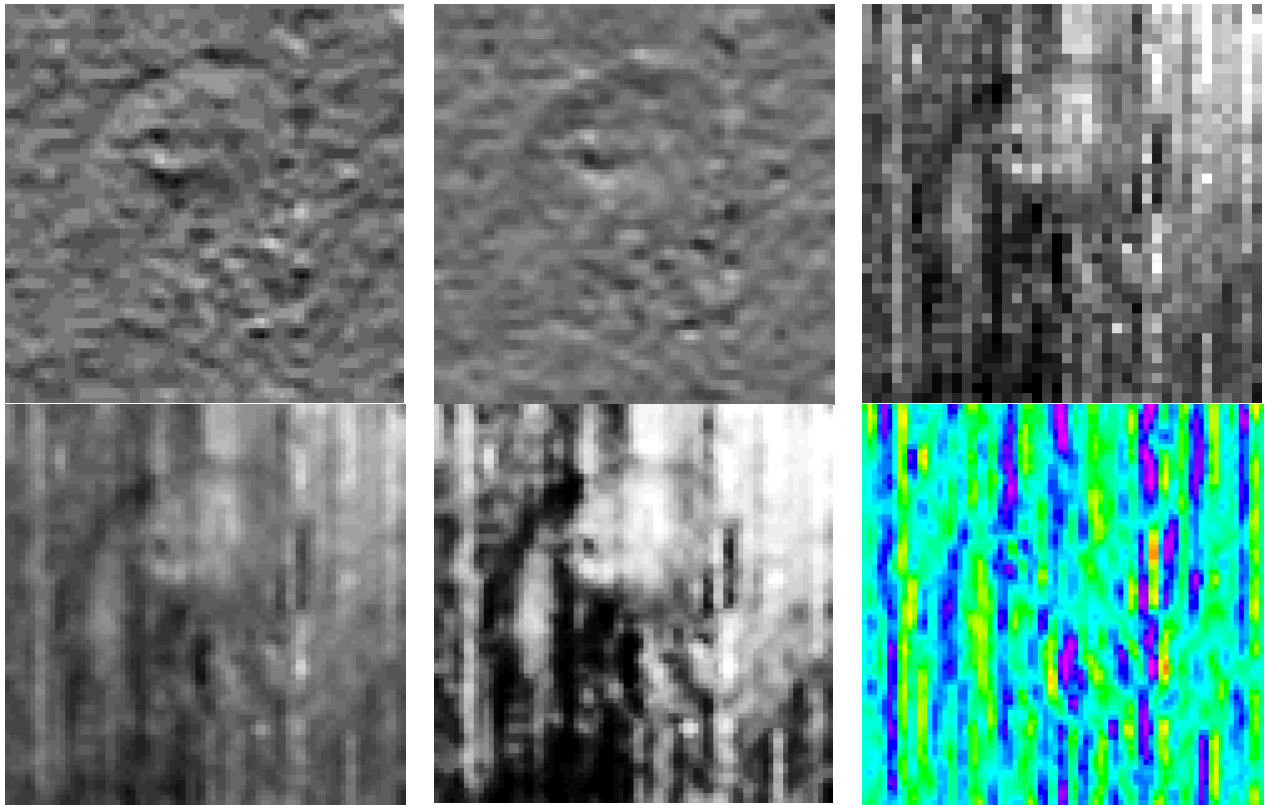
*The influence of two different image processing techniques on the same set of raw data*

Resistance measurements in soil are influenced by many factors including its ionised water content, mineral content, mineral type, temperature and packing. Most of these are compensated by the configuration of the equipment when using any twin probe array, where fixed electrodes are placed a distance away from the operational area. This enables the average resistance in a curved zone beneath the two mobile probes to be determined. (The actual physics involved are fairly straightforward, the main problems arising from contact resistance and polarisation but the reader is referred to one of the standard text for further detail.) We are not aware of any published comparison of different manufacturer's equipment but have been told of one experiment where, on the same site under the same conditions, the results produced from a Geoscan RM15 were indistinguishable from those using the TRCIA equipment. In practice, as can be seen above, the processing of the raw resistance data can have such a major effect that minor differences in equipment performance are immaterial.

In a deep ploughed field the surface packing becomes a key determinant of resistance. The probes may connect with surface soil but if the interface of one large disturbed piece with the underlying soil matrix has dried or is particularly stony then the average reading is unduly dependent on the moisture content of that particular interface, whatever the condition of the underlying soil matrix. The key fact recorded in the original report, regarding the quality of the data was therefore the description of the surface conditions as:-

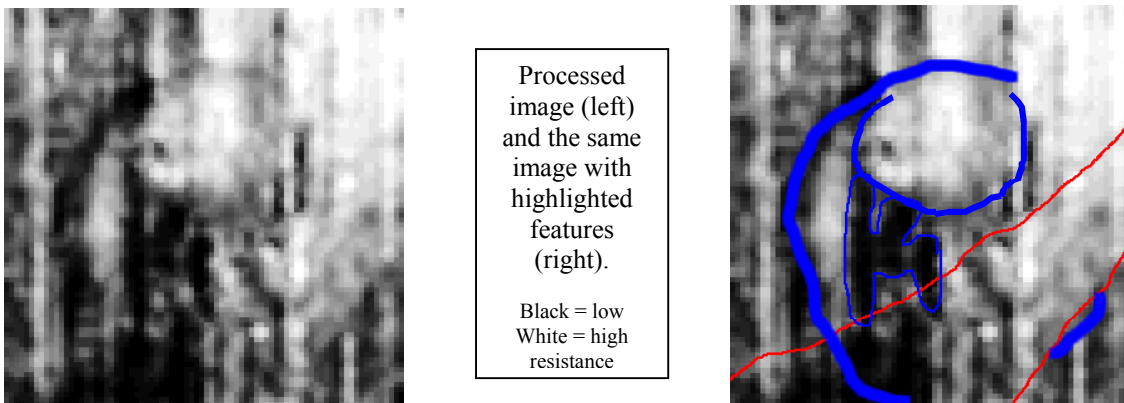
*"Not ideal as the site had been coarse cultivated after cropping with marked disruption to the surface at approximately 45cm intervals running NW-SE. This caused intermittent poor contact for measurements."*

With regard to the image processing, this is highly subjective and may involve the use of techniques such as spike removal, various levels of high pass filters, using only part of the available data, interpolation or the use of false colour. The size of an image may also be used in presentational material to influence the perceived contrasts. The examples below illustrate various presentations of the data collected in this study, including a false colour manipulation of the data to show the plough lines rather than the ring ditch.



In an ideal world this study would have been undertaken when the soil surface had settled back into an even matrix, but even professional archaeologists have been known to occasionally work in less than optimal conditions!

It should be noted that despite the extremely poor conditions for a resistivity study, not only has a clear image compatible with a classic ring ditch (blue) been produced, but with sufficient detail to identify some sort of internal structure slightly off centre and a further anomaly post dating the ring ditch as highlighted (red) below: The latter may be due to a B17 aircraft crash landing in 1944.



In conclusion; any resistivity report is highly dependent on the subjective processing of the available data, which is invariably influenced by preconceptions about the site; and basic data should, when possible, be collected in optimal conditions to reduce processing bias.

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*Thriplow Landscape Research Group Aug 2004*